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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEWIS, BEN

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/721,616	Applicant(s) SUGIURA ET AL.	
	Examiner Ben Lewis	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. The Applicant's amendment filed on December 16th, 2009 was received. Claim 1 was amended. Claims 3 and 4 were cancelled.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action (issued on September 17th, 2009).

Claim Rejections - 35 USC § 103

3. Claims 1-2 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over (U.S. Patent No. 6,403, 247 B1) in view of Gyoten et al. (U.S. Pub. No. 2001/0033954A1).

With respect to claims 1-2, Guthrie et al. disclose a fuel cell power plant wherein, with respect to separators sandwiching an electrode assembly, Guthrie et al. teach that conventional PEM fuel cells have the ion exchange membrane positioned between two gas-permeable, electrically conductive plates, referred to as the anode and cathode plates. The plates are typically formed from graphite, a graphite-polymer composite, or the like. The plates act as a structural support for the two porous, electrically conductive electrodes, as well as serving as current collectors and providing the means for carrying the fuel and oxidant to the anode and cathode, respectively. They are also utilized for

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carrying away the reactant by-product water during operation of the fuel cell (Col 2 lines 25-40).

With respect to the coolant flow field configuration and supply and discharge passages, Guthrie et al. teach that FIG. 11 illustrates a cross-sectional view of a fuel cell power plant having an integrated manifold system according to another embodiment of the present invention, generally designated by numeral 700. As shown in FIG. 11, the fuel cell power plant 700 comprises two operatively connected fuel cell stacks, 702 and 704 respectively, which share a common, integrated oxidant flow manifold 706. The integrated oxidant flow manifold 706 is preferably formed from a lightweight dielectric reinforced plastic, such as but not limited to glass filled NORYL.TM. or the like. The fuel cell power plant 700 further includes an oxidant inlet manifold 710, an oxidant exhaust manifold 612, a pair of fuel inlet manifolds 730, a pair of fuel exhaust manifolds 732, a pair of coolant gas vents 742 (air release passage), a pair of coolant inlet manifolds 740 and a pair of coolant exhaust manifolds 744 which, acting in conjunction with one another, provide the fuel cell power plant 700 with the necessary delivery and exhaust of reactant gasses and coolant (Col 13 lines 25-40) (See Fig. 11)

With respect to wherein the separator is in an upright position and a width of the separator is greater than a height of the separator, Guthrie et al disclose a separator in an upright position and a width of the separator is greater than a height of the separator (See. Fig. 5). Guthrie et al. also teach coolant inlet manifolds 240 and outlet manifolds 244.

Examiner notes that although the air release passage 742 of Guthrie et al. is not aligned with the discharge passage of Guthrie et al. the air release passage of Guthrie et al. is above the discharge passage 744 of Guthrie et al. as shown in Fig. 11.

With respect to said separator includes first and second metal plates, examiner notes that the stack of Guthrie et al. must include a second coolant separator plate in order to contain the cooling fluid (See Fig. 11).

With respect to the coolant supply passage being provided at a middle position of one end of said separator and coolant discharge passage is provided at a middle position at the other end of said separator presents no novel or unexpected result over the location of the coolant supply and discharge passages in the Guthrie et al. reference. The positioning of the coolant supply and discharge passages in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill of the art. In re Launder, 42 CCPA 886, 222 F.2d 371, 105 USPQ 446 (1955); Flour City Architectural Metals v. Alpana Aluminum Products, Inc., 454 F. 2d 98, 172 USPQ 341 (8th Cir. 1972); National Connector Corp. v. Malco Manufacturing Co., 392 F.2d 766. 157 USPQ 401 (8th Cir.) cert. denied, 393 U.S. 923, 159 USPQ 799 (1968).

With respect to the wherein the air releasing passage is aligned with the coolant discharge passage on the same side of the separator as the coolant discharge passage is positioned presents no novel or unexpected result over the location of the air-releasing and discharge passages in the Guthrie et al. reference. The positioning of the air releasing and discharge passages in lieu of those used in the references solves no

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stated problem and would be an obvious matter of design choice within the skill of the art. Since both the prior art and Applicant's air-releasing serves the same purpose of releasing air that might be entrained within the incoming coolant flow. And both the prior art and the Applicants air-releasing passage is located at an opposite end of the incoming coolant passage to facilitate bleeding of any entrained air. In re Launder, 42 CCPA 886, 222 F.2d 371, 105 USPQ 446 (1955); Flour City Architectural Metals v. Alpana Aluminum Products, Inc., 454 F. 2d 98, 172 USPQ 341 (8th Cir. 1972); National Connector Corp. v. Malco Manufacturing Co., 392 F.2d 766. 157 USPQ 401 (8th Cir.) cert. denied, 393 U.S. 923, 159 USPQ 799 (1968).

Guthrie et al. do not specifically teach metallic separator plates, however, Gyoten et al. disclose a fuel cell system wherein, for the separator plates, a carbon material which is electrically conductive and has both gas tightness and corrosion resistance is often used. However, metallic separator plates such as stainless steel are also used in view of its good processability and inexpensiveness, and also from the viewpoint that thinner separator plates can be obtained. (Paragraph 0006) Therefore it would have been obvious to one of ordinary skill in the art to use metallic separator plates of Gyoten et al. in the fuel cell system of Guthrie et al. because Gyoten et al. teach that metallic separator plates such as stainless steel are also used in view of its good processability and inexpensiveness, and also from the viewpoint that thinner separator plates can be obtained (Paragraph 0006).

With respect to claims 5 and 6, Examiner notes that the flow path of the reactant gasses of Guthrie et al. follow a serpentine path (See Fig. 11.). With respect to said separator includes first and second metal plates, examiner notes that the stack of Guthrie et al. must include a second coolant separator plate in order to contain the cooling fluid (See Fig. 11).

Response to Arguments

4. Applicant's arguments filed on December 16th, 2009 have been fully considered but they are not persuasive.

Applicant's principal arguments are

(a) Applicants respectfully submit that the combination of the Guthrie and Gyoten references does not teach or suggest that "the separator is in an upright position and a width of the separator is greater than a height of the separatorsaid coolant supply passage is provided at a middle position of one vertical end of said separator, and said coolant discharge passage is provided at a middle position of the other vertical end of said separatorthe air-releasing passage is aligned with the coolant discharge passage on the same side of the separator as the coolant discharge passage is positioned," as recited in amended claim 1.

The claimed invention is directed to a fuel cell including a separator whose width is greater than its height, a coolant supply passage and a coolant discharge passage provided at opposite ends of the separator in the width direction, and an air-releasing

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passage positioned above the coolant discharge passage. Especially, the air-releasing passage is aligned with the coolant discharge passage on the same side of the separator as the coolant discharge passage is positioned. With the above feature of the claimed invention, it is possible to enhance the air discharging efficiency remarkably as compared with an air-releasing passage positioned at the same side as the coolant supply passage.

In response to Applicant's arguments, please consider the following comments.

(a) With respect to wherein the separator is in an upright position and a width of the separator is greater than a height of the separator, Guthrie et al disclose a separator in an upright position and a width of the separator is greater than a height of the separator (See. Fig. 5).

With respect to the coolant supply passage being provided at a middle position of one end of said separator and coolant discharge passage is provided at a middle position at the other end of said separator presents no novel or unexpected result over the location of the coolant supply and discharge passages in the Guthrie et al. reference. The positioning of the coolant supply and discharge passages in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill of the art. In re Launder, 42 CCPA 886, 222 F.2d 371, 105 USPQ 446 (1955); Flour City Architectural Metals v. Alpana Aluminum Products,

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Inc., 454 F. 2d 98, 172 USPQ 341 (8th Cir. 1972); National Connector Corp. v. Malco Manufacturing Co., 392 F.2d 766. 157 USPQ 401 (8th Cir.) cert. denied, 393 U.S. 923, 159 USPQ 799 (1968).

With respect to the wherein the air releasing passage is aligned with the coolant discharge passage on the same side of the separator as the coolant discharge passage is positioned presents no novel or unexpected result over the location of the air-releasing and discharge passages in the Guthrie et al. reference. The positioning of the air releasing and discharge passages in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill of the art. Since both the prior art and Applicant's air-releasing serves the same purpose of releasing air that might be entrained within the incoming coolant flow. And both the prior art and the Applicants air-releasing passage is located at an opposite end of the incoming coolant passage to facilitate bleeding of any entrained air. In re Launder, 42 CCPA 886, 222 F.2d 371, 105 USPQ 446 (1955); Flour City Architectural Metals v. Alpana Aluminum Products, Inc., 454 F. 2d 98, 172 USPQ 341 (8th Cir. 1972); National Connector Corp. v. Malco Manufacturing Co., 392 F.2d 766. 157 USPQ 401 (8th Cir.) cert. denied, 393 U.S. 923, 159 USPQ 799 (1968).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben Lewis whose telephone number is 571-272-6481. The examiner can normally be reached on 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ben Lewis/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795